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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,642	06/20/2001	Darrell W. Kelsoe		4543

7590

11/27/2002

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MOBILE, AL 36606-1934

EXAMINER
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CAMERON, ERMA C

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 11/27/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/885,642

Applicant(s)

KELSOE, DARRELL W.

Examiner

Erma C. Cameron

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 72-118 is/are pending in the application.
- 4a) Of the above claim(s) 79, 102 and 103 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 72-78, 80-101 and 104-118 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 72-118 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- trivalent, tetravalent or pentavalent atoms,
- type of functional group,
- acid or base catalyst,
- structure of solute compound,
- catalyst added to the solution prior to application or added to the wood after application of solution to the wood.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

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Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Gregory Friedlander on October 31, 2002 a provisional election was made with traverse to prosecute the invention of tetravalent atoms, alkoxy functional group, catalyst added to the solution prior to application to wood,  $R_3XaXb$  as the solute compound, and acid catalyst; claims 72-78, 80-101 and 104-118.

Claims 79 and 102-103 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected species.

The applicant also supplied a confirmation in writing on 10/31/2002.

### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

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a) The Brief Description of the Drawings does not agree with the drawings themselves.

The Description contains Figures 6a, 6b and 6c, whereas the drawings are labeled 6, 6a and 6b.

b) The specification discusses Figures 6a, 6b and 6c, but not Figure 6.

c) Figure 13: 6 and 8 are not described in the specification.

d) Figure 14 is referred to on page 30 as portraying chemical reactions. However, Figure 14 appears to be a piece of equipment.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

4. Claims 72-78, 80-101 and 104-118 are objected to because of the following informalities:

a) 15:16 – reference numbers such as “60” should be put into brackets.

b) 15:16 – chemical formulas such as  $(\text{CH}_3)_3\text{SiCl}$  should use proper subscripts and superscripts.

c) 15:21 and 22 – spelling of hydroxyl.

d) 17:3, 19:11 – parentheses not closed.

e) 34:18 – passage 70?

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 72-78, 80-101 and 104-118 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

a) Page 12, line 18 and page 13, line 13: it is not clear what is meant by ...absorbing sodium silicate... or ...WPTC may introduce Borax and Sodium Silicate into the wood...

Sodium silicate is not mentioned elsewhere in the specification as being one of the chemicals used in the treatment.

b) 25:1 – seven valence halogen. It is not clear how fluorine, chlorine or bromine can be called seven valence halogens.

c) 24:18-22 – these formulas are correct only for a tetravalent Xa. They would not be correct for tri or pentavalent Xa.

7. Claims 72-78, 80-101 and 104-118 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

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reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 72, 106, 111: hydrophilic organic solvent appears to be new matter. The examiner cannot find where in the specification as originally filed the organic solvents are termed "hydrophilic".

8. Claims 74, 75, 78 and 117 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The examiner cannot find where in the original specification the reaction of the functional group with the wood is described as exothermic or as self-initiating.

Therefore these terms appear to be new matter.

9. Claims 76 and 92 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The examiner cannot find where in the specification as originally filed there is a description of the solute being monomeric before application to the wood. In fact, Figures 7-10 show the solute polymerizing before reacting with the wood.

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This appears to be new matter.

10. Claims 82-84, 86-88 and 111-118 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification as originally filed does not describe a pro-catalyst and non-pro-catalyst.

These terms appear to be new matter.

11. Claims 100-101 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification as originally filed does not disclose an acid reducing compound.

This appears to be new matter.

12. Claim 104 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.



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The specification as originally filed does not disclose that the functional groups are solvated by water.

This appears to be new matter.

13. Claim 99 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification as originally filed does not disclose cyclic interlocking molecules having as a part of the cyclic structure at least two carbons within the cellulose and at least two of the atoms from the functional groups consisting of trivalent, tetravalent and pentavalent atoms.

This appears to be new matter.

14. Claims 111-117 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating wood with a solute of tetravalent atoms with an alkoxy functional group and an acid catalyst, does not reasonably provide enablement for any “pro-catalyst reactant” and any “non-pro-catalyst reactant”. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

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The description of the reactants as “pro-catalyst” and “non-pro-catalyst” is broader than the specification.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 72-28, 80-101 and 104-118 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) There is no antecedent basis for :

Claim 73	the monomers
Claim 76	the reactive solute
Claim 76	the solute compound
Claim 78	the exothermic reaction of the functional group
Claim 88	the non-pro-catalyst
Claim 89	the non-catalytic reagents
Claim 91	the acid or base generated from the catalyst
Claim 97	the carbon compound
Claim 99	the functional groups consisting of trivalent, tetravalent and pentavalent atoms
Claim 100	the treatment

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Claim 109	other molecules of said solute
Claim 109	the molecules of the solute
Claim 117	the non-pro-catalyst functional groups
Claim 118	the non-catalytic reagents

b) Claim 73 is dependent on claim 76.

c) Claim 72 and 106: it is not clear what the solute or functional group reacts with.

d) Claim 83 and 84 and 91: it is not clear if the % is based on weight or other measurement.

e) Claim 89: the use of the term would is vague in that it is not clear what is included.

f) Claim 97: the chemical structures are for tetravalent atoms only, and not for tri- or penta-valent.

g) Claim 115: "acid" should come after hydrochloric.

h) Claim 72: the closed language of Claim 72, consisting essentially of, would preclude the acid or base catalysts of claim 77 and other claims.

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### *Double Patenting*

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 72-77, 80, 92-96, 98 and 104-109 are provisionally rejected under the judicially created doctrine of double patenting over claims 35, 39-40, 42, 44-45, 48, 49-51, 57-60, 62-63 and 65-67 of copending Application No. 09/788165. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: treating wood with a solution of tetravalent or pentavalent compound containing a functional group, and optionally a catalyst.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

*Claim Rejections - 35 USC § 103*

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 72-78, 80-96, 98-101 and 104-109 and 111-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-318509.

'509 teaches impregnating wood (which may be humidified (page 13 of translation)) with an alcohol or acetone solution (p13) comprising a metal oxide, trimethoxy silane (p 22) and an acid catalyst (p 14, 16). The silane condenses with itself and/or reacts with the hydroxyl of the wood (p 8). The wood has fire retardant properties (p 8). The property of the silane reacting exothermically with the wood would be inherent to the reaction.

21. Claim 110 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-318509 taken in view of 3682675 (Myers) or Ogiso et al (Mokuzai Gakkaishi, 39(3), pp 301-307, 1993).

'509 is applied here for the reasons given above.

'509 fails to teach using ultrasonics.

'675 teaches that ultrasonics helps to promote acceptance of chemical solutions, of substances such as borax, into wood (2:22-34; 3:4-9).

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Ogiso teaches using ultrasonics to aid in the penetration of a silane solution into wood (see Abstract, page 302).

It would have been obvious to one of ordinary skill in the art to have incorporated the ultrasonics of '675 or Ogiso into the '509 process because of the teaching that ultrasonics helps promote acceptance into the wood

22. Claim 97 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-318509 taken in view of 5652026 (Saka et al).

'509 is applied here for the reasons given above.

'509 fails to teach that a silane of structure  $R_3Si(OR')$  is used in the solution to treat wood.

'026 teaches that silanes such as trimethylmethoxysilane (Example 5) or dimethyldimethoxysilane (Example 4) may be used in an acid or base catalyzed solution of acetone or alcohol to treat wood (4:29-5:15)

It would have been obvious to one of ordinary skill in the art to have substituted one of the silanes of '026 into the '509 treatment process, with the expectation of equivalent results.

### *Conclusion*

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erma C. Cameron whose telephone number is 703-308-2330.

The examiner can normally be reached on 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
**ERMA CAMERON**  
**PRIMARY EXAMINER**

Erma C. Cameron  
Primary Examiner  
Art Unit 1762

November 25, 2002